

ABSTRACT

5 **MULTI-NODE HFC DIVERSE ROUTE RECOVERY ALGORITHM
 USING MULTI-STAGE, WIDE-MODE MARSHAL WITH
 BRANCH FAILURE DETECTION**

10 A method for synchronizing transmitters within a communications network by
utilizing wide-mode marshaling. Wide-mode marshaling increases the bandwidth dedicated
to performing a marshaling process, thereby allowing a controller to quickly marshal the
transmitters. Within a TDMA network, a TDMA frame includes a header portion and a
multi-channel portion. Each of the transmitters within a TDMA network transmits during an
assigned time-slot of the TDMA frame. To marshal a transmitter, the transmitter is requested
15 to transmit a ranging signal to a central controller. If the ranging signal is received during the
header portion of the TDMA frame, the controller can accurately detect the ranging signal.
However, for longer propagation delays, the length of the header is insufficient. Wide-mode
marshaling resolves this by silencing some or all of the transmitters to increase the bandwidth
for receiving the ranging signal.

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